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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/990,264	11/23/2001	Hiroshi Sugiura	216379US2	2415
22850	7590	09/21/2006	EXAMINER	
C. IRVIN MCCLELLAND OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			MARTIN, ANGELA J	
			ART UNIT	PAPER NUMBER
			1745	

DATE MAILED: 09/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/990,264

Applicant(s)

SUGIURA ET AL.

Examiner

Angela J. Martin

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13, 40 and 41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13, 40 and 41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 6, 2006 has been entered.

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. The term "undergone a change over time" in claims 1 and 8 is a relative term, which renders the claim indefinite. The term "undergone a change over time" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3, 7-9, 11-13, 40 are rejected under 35 U.S.C. 102(b) as being anticipated by Harashima, U.S. Pat. No. 5,290,641.

Rejection of claims 1-3, 7, 40 drawn to a fuel cell output characteristic estimating apparatus; claims 8, 9, 11-13 drawn to a fuel cell system.

Harashima teaches a fuel cell output characteristic estimating apparatus comprising a current-voltage detector and a controller that estimates the output characteristic of the fuel cell on the basis of the current and voltage between the terminals, detected by the current-voltage detector, and a predetermined basic output characteristic of the fuel cell (col. 3, lines 40-56; col. 4, lines 4-6). It teaches the controller derives basic output characteristic from a temperature of the fuel cell (col. 4, lines 48-60). It also teaches the controller derives the basic output characteristic from an output characteristic corresponding to the temperature of the fuel cell (col. 5, lines 10-23). It teaches the controller estimates the output characteristic on the basis of it corresponding to the temperature of the fuel cell (col. 6, lines 24-35). Additionally, it teaches a fuel cell system having a fuel cell, the fuel cell system comprising a fuel cell output characteristic estimating apparatus comprising a current-voltage detector and a controller that estimates the output characteristic of the fuel cell on the basis of the

current and voltage between the terminals, detected by the current-voltage detector, and a predetermined basic output characteristic of the fuel cell; sets a target output of the fuel cell using the output characteristic; and adjusts an output of the fuel cell such that the set target output is generated by the fuel cell (col. 7, lines 40-56). It also teaches the controller changes supply of the electric power to or from the power supply when the set target output is in excess of or short of the required output of the fuel cell system (col. 7, lines 57-65). It also teaches the controller changes the voltage between the terminals into a voltage corresponding to the set target output (col. 8, lines 60-68 and col. 9, lines 1-16).

Thus, the claims are anticipated.

***Claim Rejections - 35 USC § 102/103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 4-6, 10, 41 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Harashima, U.S. Pat. No. 5,290,641.

Rejection of claims 4-6 drawn to a fuel cell output characteristic estimating apparatus; claims 10, 41 drawn to a fuel cell system.

Harashima teaches the fuel cell output characteristic estimating apparatus and fuel cell system as described above.

Thus, the claims are anticipated.

However, if the claims are not anticipated, in the alternative, they are obvious because although Harashima does not teach the controller estimates an internal resistance of the fuel cell, the internal resistance and current are inversely proportional to each other, so the estimation of the current would be inversely proportional to the resistance. In addition, although the prior art of record does not teach the controller includes a transformer connected to terminals and transforms the voltage between the terminals to be applied to output terminals of the fuel cell, the prior art of record teaches a control system for controlling the power of the fuel cell by inverting the output of the fuel cell and supplying the output power to an external load (col. 3, lines 40-50; col. 4, lines 19-30), which is the role of the transformer.

### ***Response to Arguments***

7. Applicant's arguments filed 8/4/06 have been fully considered but they are not persuasive. Applicant argues that the prior art of record, "does not estimate the output characteristics of a fuel cell whose output has undergone a change over time." However, the term, "a change over time" is rejected, as described above. Applicant argues that Harashima "lacks the claimed feature of a controller that estimates the output characteristic of the fuel cell whose output has undergone a change over time." However, Harashima discloses controlling the fuel cell on the basis of the current and voltage (col. 4, lines 19-65).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela J. Martin whose telephone number is 571-272-1288. The examiner can normally be reached on Monday-Friday from 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



AJM